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Factors Influencing the Intention to Use E-Government Services: The Case Study in Cambodia

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Abstract

The goal of this study is to determine the variables that influence users in three Cambodian institutions' adoption and utilization of e-government services. By employing a multi-stage sampling method, which selects a sample size through two or more phases, the researcher carried out the investigation utilizing a quantitative approach. Purposive sampling was employed in this investigation after stratified random sampling. Five hundred civil officials from three ministries in Cambodia who had used e-government services provided the data. The structural equation model (SEM) and confirmatory factor analysis (CFA) were modified for this study in order to examine the model's correctness, dependability, and the impact of different variables. The main finding indicated that among users in three Cambodian institutions, behavioral intention to use e-government services significantly influences e-government service user behavior. Furthermore, the findings showed that behavioral intention is significantly impacted by social influence, performance expectancy, trust in e-government, trust in the internet, facilitating conditions, and accessibility. In addition, the most powerful influence on behavioral intention is social influence, which is followed by trust in e-government, trust in the internet, performance expectancy, facilitating conditions and accessibility. On the other hand, behavioral purpose is unaffected by effort expectancy.

Keywords

User Behavior, Social Influence, Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Accessibility

1. Introduction

In the twenty-first century, implementing information and communications tech-

nologies (ICTs) is becoming indispensable to people's everyday lives (Jonathan & Rusu, 2019). Governments all throughout the world have embraced e-government services as a result of the Internet's broad use, and their real usage has increased quickly. All government policies must take people and policy into account. By knowing how citizens feel about the adoption or non-adoption of e-government services, policymakers may better understand how citizens behave. This research investigates the behavioral intentions of government agencies as an extension of our previously published work that concentrated on the adoption behavior of e-government among hard-to-reach groups (Iong & Phillips, 2023).

However, the perspective of government personnel has seldom been taken into account, let alone perspectives based on a thoroughly established theoretical framework. Previous studies have mostly focused on the behavior of the general public toward the use of e-government (Rehouma & Hofmann, 2018; Amrouni et al., 2019). Government agencies are playing a role in transforming the operations of traditional government services into online systems, as they are the ones who execute these services to support users in performing their service requests. Investigating how citizens and government workers view e-government services could produce important results. Consequently, the viewpoints of government workers are the main emphasis of this research. As they concurrently serve as implementers and users, the primary goal is to investigate their perspectives on the e-government implementation process. Their views allow policymakers to evaluate the relative merits of traditional in-person and online services.

Public organizations were improving their management procedures in return for more productive and successful businesses. This implies that they had to raise the bar for the quality of services they provided to their citizens, particularly for e-services. Information and communications technology (ICT) has emerged as an essential and necessary tool to accomplish this goal. A number of writers have viewed this process transformation as an attempt to revive a novel approach to public management that peaked in the late 1980s (Ganesan & Hess, 1997; Barzelay, 2001; Hughes, 2003). Furthermore, this new strategy resulted in a new method of interacting with the government and providing public services (Teicher et al., 2002). Among other important elements of the reform was e-government, which allows governments to provide public services, procedures, and pertinent information online or through other digital platforms (West, 2004). Crucially, it influenced how citizens interacted with governments and changed the conventional methods of providing public services (Snellen et al., 2002; Teicher et al., 2002).

The online e-government services that use information and communications technology to address the increasing demand for e-government services for convenience, cost-effectiveness, and quicker processing of tax returns were a major breakthrough in the field of public administration (Roberts et al., 2003). A major influence on the development of new, emergent e-businesses was the Internet and information technology. Additionally, they directly impacted time efficiency, pro-

duction, and savings (Akamavi, 2005). E-government services, payments, and refunds were processed directly and efficiently when crucial data were kept in database elements rather than using manual data entry techniques (Parasuraman & Grewal, 2000). With an online presence, many businesses have been using information technologies more and more (Huizingh, 2002), and websites have developed into active platforms for user interaction that facilitate business transactions (Van der Merwe & Bekker, 2003).

Even though e-government services are being used in many nations, there are still issues with their rollout and uptake. A number of studies (Irani, Elliman, & Jackson, 2007; Carter & Weerakkody, 2008; Dwivedi & Irani, 2009; Alshehri & Drew, 2012; Rehman, Esichaikul, & Kamal, 2012) have suggested that these issues in developing nations may be caused by a lack of government regulations and infrastructure, a lack of awareness, a lack of technical skills, low-cost technology, and a lack of human resource capacity.

In a similar vein, the public's faith in Cambodia's public service delivery has not yet been sufficiently established; this could be due to a lack of capability in law enforcement, regulatory frameworks, and institutional development. To ensure that public services are provided effectively and efficiently, public institutions must enhance their human resource capacity and good governance. This is done in order to better serve the public and to enhance the business and investment environment (Fung & McAuley, 2020).

Numerous Southeast Asian nations have invested substantial sums of money in the development of information and communications technology across a wide range of fields, including tax administration (Kozma & Vota, 2013). Phase I of the Pentagon Strategy Plan for Cambodia would see technical and scientific advancements, rightly dubbed the "Fourth Industrial Revolution," dominating all facets of socioeconomic development, creating new challenges and opportunities for the global community. Automation would be significantly encouraged by technological advancement to replace human labor, changing economic structures, factors of production, spending patterns, and human behavior. In order to maximize public service delivery, improve revenue mobilization, and fortify e-government services revenue collection through its e-government services and enforcement programs to improve e-government services compliance, the government has therefore developed a national strategy to improve e-government and implemented programs that mandate that the public sector have both human resources and pertinent ICT infrastructure.

2. Literature Review

2.1. E-Government Definition

The significance of e-government for improved governance and service delivery to individuals, corporations, and other government agencies has been acknowledged by numerous countries worldwide. According to researchers like Tolbert & Mossberger (2006), e-government is a global phenomenon that many nations are

working to implement. The necessity for public sector reform, outside influences (such as the government's designation as an e-government agency), the need for a citizen-centric administration, and the availability of the required telecommunications infrastructure are some of the many causes of this. Additionally, e-government provides numerous advantages to various stakeholders. Therefore, the establishment of e-government is becoming a crucial and mandatory activity for governments (Sá et al., 2013).

The notion of e-government is multifaceted and intricate, and its definition is up for debate. Divergent opinions on it are a reflection of different government, organizational, and research interests. E-government is therefore defined differently by scholars and experts (Nicoletti & Scarpetta, 2003; Carter & Bélanger, 2005). For this research (Banks, 2015), e-government refers to the use of information and communications technologies (ICT) to improve the efficiency, effectiveness, transparency, and accountability of government. E-government can be seen simply as moving citizen services online, but in its broadest sense, it refers to the technology-enabled transformation of government—governments' best hope to reduce costs, whilst promoting economic development, increasing transparency in government, improving service delivery and public administration, and facilitating the advancement of an information society.

2.2. Stages of E-Government Implementation

E-government represents a paradigm shift from traditional government, and its evolution happens in stages. These stages are a method for quantifying progress and are based primarily on the content and deliverable services available through official websites; the interactive features (e-mail), quality and timeliness of information, and the capacity to conduct online transactions. This e-government categorization is included in different stage models proposed by various authors and organizations (Layne & Lee, 2001; Marsh, 2010; UNDESA, 2012; Buettner et al., 2013). Although some differences exist in these models, most of them bear the same basic characteristics, including some 'linear' stages: presence/information provision, interaction, transaction and transformation, through vertical and horizontal integration.

In this Research Project, the stage model presented by UNDESA (2012) and accepted by Buettner et al. (2013) has been adopted, which includes five stages that may not all be achieved at the same time. The stages of the model are:

Stage one (Emerging Presence): A regular but limited web presence is established through independent government websites, which provide users with static information, like contact information (i.e., telephone numbers and addresses of government departments). In some cases, special features like FAQs may be found.

Stage two (Enhanced Presence): Websites' content consists of more dynamic and specialized information. Government publications, legislation, and newsletters are available, as well as search features and e-mail addresses. There are links

to other government webpages, and forms can be downloaded and submitted offline (i.e., by mail) and online via e-mail.

Stage three (Interactive Presence): Government websites offer a more sophisticated level of formal interactions between citizens and service providers, like e-mail and post comment areas. The capacity to search specialized databases and download forms, and the e-submission of them, is also available.

Stage four (Transactional Presence): Websites support some fully electronic and secure transactions, such as payments or the submission of information. These transactions could include obtaining birth and marriage certificates, passports, renewing driving licenses, and permits, where a user can pay online for the services. A central government portal is usually present, which provides a broad range of information and services to users without the need to deal directly with various departments. Secure sites and user passwords are present, while digital signatures may be used to facilitate doing business with the government.

Stage five (Seamless or Fully Integrated): Websites offer the capacity to access the services in a "unified package". Agency lines of differentiation are removed, and services are well-suited to citizens' and businesses' needs.

2.3. Theory of Reasoned Action (TRA)

Fishbein & Ajzen (1975) introduced TRA to study the impact of attitudes on behaviors. It was considered a main human behavior theory that was applied to foresee different behaviors within various domains, including marketing, sociology, and information technologies (Agarwal, 2000). The TRA model showed that the actual behavior of any individual can be significantly determined by the intention to perform a behavior. This theory contained two constructs—attitude towards behavior and subjective norms (Fishbein & Ajzen, 1975).

2.4. Theory of Planned Behavior (TPB)

Ajzen (1991) developed TPB as an addition to the TRA model. Even though a number of research had used the TRA model to explain technology acceptance, the TRA model was not as useful if individuals were led by others (Ajzen, 1991). For that reason, Ajzen (1991) aimed to correct this limitation by extending the TRA model to become the TPB model by adding another independent variable-perceived behavioral control to deal with the weakness of the theory in the TRA model, which ignored social factors and their associated effect. The TPB model is not different from the TRA model; it explains a great variety of individual behaviors (Agarwal, 2000). This theory was adopted by many researchers to predict intention and behavior in various contexts (Ajzen, 1991).

2.5. Technology Acceptance Model (TAM)

Davis (1989) developed TAM. Though several studies adopted the TRA model to observe the acceptance of technology (Davis, 1989; Brown & Venkatesh, 2005; Fan et al., 2016), the TAM model has extended the TRA model to another circum-

stance of the information system. The only purpose of the TAM model was to describe the influencing factors on computer acceptance; however, it was expanded to predict behavior in a broader range of technologies and various users. While the TRA model included two constructs as determinants of intentions, the TAM model excluded subjective norms as a determinant of intentions. Moreover, the TAM model was different from the TRA model, which was considered general and designed to describe almost all the behavior of people (Al-Suqri & Al-Kharusi, 2015), while the TAM model was developed only for application to computer use.

2.6. Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) developed UTAUT. Even though the TAM model had been very useful in several studies to determine individuals' intentions (Lee, Cheung, & Chen, 2005; Saade, Nebebe, & Tan, 2007), the two previous theories—TAM and TPB—could explain less than 50 percent of the variance in user behavior. This showed that the two above-mentioned models failed to be valid theories for determining users' acceptance; especially, the models did not consider other social and institutional aspects that affected the way in which people accepted the technology (Eagly & Chaiken, 1993). With some limitations and a lower percentage of the variance of user behavior under the three models, Venkatesh et al. (2003) tried to overcome these failures and address some limitations of the above-mentioned theories by incorporating various acceptance theories to develop UTAUT.

The UTAUT contained several constructs to predict behavioral intention and to determine user behavior. These constructs were performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). The four constructs have been known as key determinants that provide a better explanation and prediction of human behavior and intention.

Moreover, the UTAUT included gender, age, experience, and voluntariness as moderators to check the tendency of the relationship between independent constructs and the dependent construct. Furthermore, a moderator can gradually adjust the direction of these relationships (Sharma et al., 1981). In order to support the four moderators, Venkatesh et al. (2003) stated that the impact of social variables on motive was affected by gender, experience, age, and desire for usage, while the effect of activity-based variables on motive was influenced by gender, experience, and age.

Referring to the lower percentage of the variance of user behavior described by the TPB and the TAM model, and given the fact that this model could describe 70 percent of the variance of acceptance and use behavior and also considered social aspects and other organizational factors as additional variables to determine user behavior (Masrom & Ismail, 2008), this model was therefore viewed as a successful model for examining technology acceptance (Goodhue, 2007). With this relatively high percentage of the variance and the additional focus on other social and or-

ganizational aspects, a number of researches have applied the UTAUT to study technology acceptance and use in many areas (Ali et al., 2016; El-Masri & Tarhini, 2017).

3. Hypotheses

3.1. Trust in E-Government and Behavioral Intention

Trust in e-government (TE) significantly affects behavioral intention. This finding is consistent with these studies (Carter & Bélanger, 2005; Carter & Weerakkody, 2008; Mansoori, Sarabdeen, & Tchantchane, 2018; Mensah, 2019; Nzaramyimana & Susanto, 2019; Almaiah & Nasereddin, 2020). Many studies found that TE significantly affected citizens' behavioral intention (Carter & Bélanger, 2005; Carter & Weerakkody, 2008; Mansoori, Sarabdeen, & Tchantchane, 2018; Mensah, 2019; Nzaramyimana & Susanto, 2019; Almaiah & Nasereddin, 2020). For this study, the researcher demonstrated that citizens have a greater propensity to use e-government services and completely trust the many benefits of doing so. Hence, the following hypothesis is proposed.

*H*1: *Trust in government had a significant impact on behavioral intention to use e-government services and was significant.*

3.2. Trust in the Internet and Behavioral Intention

Trust in the internet (TI) has a major impact on behavioral intention, consistent with Carter & Bélanger (2005), Alsaif (2014), Vrček and Klačmer (2014), Kurfalı et al. (2017), Aranyossy (2018), Mansoori, Sarabdeen, and Tchantchane (2018). According to Carter and Bélanger (2005), Alsaif (2014), Vrček and Klačmer (2014), Kurfalı et al. (2017), Aranyossy (2018), Mansoori, Sarabdeen, and Tchantchane (2018), TI had the greatest impact on behavioral intention. As a result, the researcher revealed that people were more inclined to use e-government services and felt secure and at ease using internet technologies. The following hypothesis is derived.

*H*2: *Trust in the internet has a significant impact on behavioral intention to use e-government services and was significant.*

3.3. Performance Expectancy and Behavioral Intention

Performance expectancy (PE) had a strong influence on behavioral intention, and this finding is consistent with Kijsanayotin, Pannarunothai and Speedie (2009), Wang and Shih (2009), Weerakkody et al. (2009), Kolog et al. (2015), Kurfalı et al. (2017), Mansoori, Sarabdeen and Tchantchane, (2018), Koranteng & Wiafe (2019), Yakubu and Dasuki (2019), Almaiah and Nasereddin (2020), Phan, Ho and Le-Hoang (2020), Kamarudin et al. (2021), Samnang et al. (2021). This result indicates that many users who are well aware of the benefits of e-government services will be more inclined to use them. Additionally, they can use e-government services to improve their overall performance, productivity, and effectiveness. Thus, the following hypothesis is deduced.

H3: *Performance expectancy has a significant impact on behavioral intention to use e-government services and is significant.*

3.4. Effort Expectancy and Behavioral Intention

The relationship between effort expectancy (EE) and behavioral intention was not significant, consistent with Kurfalı et al. (2017), Mensah (2019), Wiafe et al. (2019) and Kamarudin et al. (2021). Kolog et al. (2015), Kurfalı et al. (2017), Mensah (2019), Wiafe et al. (2019), and Kamarudin et al. (2021) found that EE did not have a significant impact on behavioral intention. It is evident from this that people are not proficient in using e-government services. Moreover, the results show that although both service providers and customers are open to using e-government services, their experiences with them are still unclear and difficult to comprehend. Furthermore, e-government services are still difficult to use and comprehensive. As a result, government organizations aiming to implement new technologies, such as e-services, must make sure that user interactions are simple and easy to comprehend, and that users may quickly become adept in the service's operations. It is unable to ascertain their purpose in behaving. Hence, the following hypothesis is proposed.

H4: *Effort expectancy*, *which has a significant impact on behavioral intention to use e-government services*, *was not significant.*

3.5. Social Influence and Behavioral Intention

Social influence (SI) had the strongest influence on behavioral intention. This was confirmed by these studies (Kijsanayotin, Pannarunothai, & Speedie, 2009; Wang & Shih, 2009; Weerakkody et al., 2009; Kolog et al., 2015; Kurfalı et al., 2017; Mansoori, Sarabdeen, & Tchantchane, 2018; Koranteng & Wiafe, 2019; Yakubu & Dasuki, 2019; Almaiah & Nasereddin, 2020; Phan, Ho, & Le-Hoang, 2020; Kamarudin et al., 2021; Samnang et al., 2021). Many studies revealed that SI significantly predicted behavioral intention (Kijsanayotin, Pannarunothai, & Speedie, 2009; Wang & Shih, 2009; Weerakkody et al., 2009; Kolog et al., 2015; Kurfalı et al., 2017; Mensah, 2019; Kamarudin et al., 2021; Samnang et al., 2021). Accordingly, people are more likely to intend to use e-government services when the government vigorously encourages their use. The following hypothesis is derived.

H5: *Social influence has a significant impact on behavioral intention to use e-government services* (*was significant*).

3.6. Facilitating Conditions and Behavioral Intention

The relationship between facilitating conditions (FC) and behavioral intention was found to be significant, consistent with these studies (Kurfalı et al., 2017; Rana et al., 2017; Aranyossy, 2018; Mansoori, Sarabdeen, & Tchantchane, 2018; Mensah, 2019; Almaiah & Nasereddin, 2020; Kamarudin et al., 2021). Many studies found that FC has a significant effect on behavioral intention (Kurfalı et al., 2017; Rana et al., 2017; Aranyossy, 2018; Mansoori, Sarabdeen, & Tchantchane, 2018;

Koranteng & Wiafe, 2019; Mensah, 2019; Almaiah & Nasereddin, 2020; Kamarudin et al., 2021). This demonstrates that although people possess the means or technological know-how to utilize e-government services, their behavioral purpose is more important. Hence, the following hypothesis is proposed.

H6: *Facilitating conditions have a significant impact on behavioral intention to use e-government services.*

3.7. Accessibility and Behavioral Intention

Accessibility (AC) significantly influenced behavioral intention, though the questions of this construct were made in a reversed pattern by these studies (Alanezi, Kamil, & Basri, 2010; Carter et al., 2010; Sundaravej, 2010; Alsaif, 2014; Koranteng & Wiafe, 2019). The studies (Alanezi, Kamil, & Basri, 2010; Carter et al., 2010; Sundaravej, 2010; Dwivedi et al., 2017; Koranteng & Wiafe, 2019) found that AC indirectly influenced behavioral intention through attitude. This indicates that people are happy with how well the nation's internet services work. Additionally, they can set aside time to utilize e-government services and increase the country's intention to use them. Thus, the following hypothesis is deduced.

H7: *Accessibility has a significant impact on behavioral intention to use e-government services; this was significant, even though the questions in this construct were made in a reversed way.*

3.8. Behavioral Intention to Use E-Government and User Behavior

Behavioral intention to use e-government services (BI) was found to have a considerable impact on user behavior of e-government services, consistent with these studies (Wang & Shih, 2009; Alsaif, 2014; Nair, Ali, & Leong, 2015; El-Masri & Tarhini, 2017). Many studies have confirmed the relationship between BI and UB (Alsaif, 2014; El-Masri & Tarhini, 2017). Wang & Shih (2009) showed that BI positively influenced UB (AlAwadhi & Morris, 2008; Kijsanayotin, Pannarunothai, & Speedie, 2009; Weerakkody et al., 2009; Nair, Ali, & Leong, 2015; Mansoori, Sarabdeen, & Tchantchane, 2018; Yakubu & Dasuki, 2019; Sudarsono, Nugrohowati, & Tumewang, 2020; Samnang et al., 2021). This shows that users' behavioral intention significantly determined user behavior of e-government services. Hence, the following hypothesis is developed.

H8: *Behavioral intention to use e-government services has a significant impact on user behavior of e-government services and was significant.*

4. Research Methods and Materials

4.1. Research Framework

The conceptual framework was developed from investigating the theoretical frameworks related to this research. It was adapted from various theoretical models to examine the factors affecting the acceptance and use of e-government services. Moreover, this conceptual framework was developed based on nine variables: trust in government, trust in the Internet, performance expectancy, effort

expectancy, social influence, facilitating conditions, accessibility, behavioral intention to use e-government services, and user behavior. The conceptual framework of this study is shown in Figure 1. This study aims to investigate the factors affecting the acceptance and use of e-government services, such as trust in government (TE), trust in the Internet (TI), performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), accessibility (AC), behavioral intention to use e-government services (BI), and user behavior (UB) among three institutions in Cambodia.

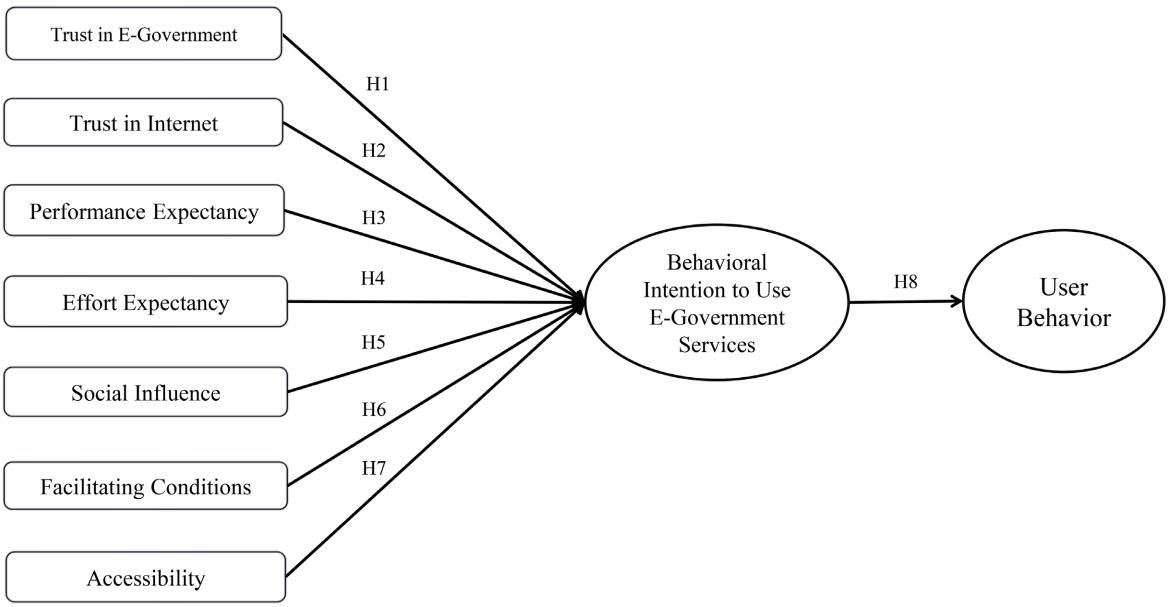


Figure 1. The conceptual framework.

4.2. Methodology

In this study, the researchers used the survey method and a quantitative research approach to gather primary data using questionnaires. The target respondents were civil officials with prior experience utilizing e-government services, and the questionnaires were created and sent to three ministries in Cambodia. There were three sections to the questionnaire. The screening question was mentioned in the first section. Eight independent variables and one dependent variable were covered in the second section, which used a five-point Likert scale. The demographic information of the respondents was the final section of the questionnaire.

4.3. Population and Sample Size

The population is important for all research. It is actually what makes it possible to take a sample. Therefore, in the context of research, populations are large groups of people or subjects that make it possible to undertake scientific investigations. The primary goal of any study effort is the public interest (Taherdoost, 2016). However, due to the size of the population, researchers usually have trouble getting information about their studies; therefore, it is crucial to choose a sample

size that is representative of the total community.

Hair (2007) mentioned that the target population was the complete set of elements related to a research project. They were related because they provided the information that the researcher wanted to gather. Moreover, Clark-Carter (2010) mentioned that the target population consisted of a group of people with common behavior towards a specific element. Furthermore, according to Kennedy et al. (2011), the target population can be people, records, or events that were the focus of the research. In addition, the target population can also be considered a big group of elements with similar characteristics (Trevena et al., 2013). Therefore, the target population was civil servants in three ministries living in Cambodia and experiencing e-government services. As of 2025, the target population in the three ministries was 9328 active civil servants who had experience using e-government services.

4.4. Sampling Technique

Probability and non-probability sampling are the two primary categories of sampling techniques, according to Cohen and Holliday (1979). The process of choosing units from a population using arbitrary criteria was known as non-probability sampling (Harley, 2019). As a result, the likelihood of selection in non-probability sampling was uncertain and largely dependent on the researcher's subjective assessment. Non-probability sampling made data collection quicker, simpler, and less expensive by eliminating the need for an extensive survey design. Blumberg, Cooper and Schindler (2014) noted that there were four different kinds of non-probability sampling method: judgment sampling, convenience sampling, quota sampling, and snowball sampling. As a result, the present study applied judgment (or purposive), convenience sampling, and quota sampling methods.

Purposeful or judgment sampling was used to identify and select examples that would effectively utilize the limited research resources available, and respondents who were most likely to offer pertinent and useful information were selected (Kelly et al., 2010; Palinkas et al., 2015). Data were gathered through personal interviews or correspondence with civil servants who reside in three institutions in Cambodia. This method is known as purposeful sampling. In order to learn more about e-government services, the researcher gave the questionnaire to those who had previously used e-government services.

Convenience sampling was used to collect data from members of the public who had easy access to it (Sekaran & Bougie, 2016). The researcher conducted in-person interviews or corresponded with his RULE. Google Forms were sent directly to respondents at the chosen sites using this sampling strategy by the researcher. They must focus on e-government services and have prior experience with online services.

Quota sampling is a non-random sampling technique in which participants are chosen on the basis of predetermined characteristics so that the total sample will have the same distribution of characteristics as the wider population (Davis,

2005). Furthermore, this study applied the sampling units, which referred to civil servants in three ministries who had experience using e-government services.

According to Hair (2003), the sampling unit was defined as objects that could be selected from the research's target population. A sampling unit can be considered a group of elements associated with the study (Davis & Cosenza, 2005), or some elements in the target population, for which the researcher believed that the selected sampling units could draw conclusions and represent the entire population (Kennedy et al., 2011), or an individual or a group of elements from a population (Tolmie & Muijs, 2011).

In this study, multi-stage sampling has been used. Multi-stage sampling contains sample size selection that follows two or more stages (Leech & Onwuegbuzie, 2007). The first stage is stratified random sampling, and the subsequent stage is purposive sampling. Stratified random sampling is a sampling method that divides a population into smaller sub-groups. Moreover, in order to determine the number of target respondents in each group, proportionate stratified sampling was applied, which represents the sample for the group (Fottrell & Byass, 2008).

Table 1. Proportionate sample size by three institutions

Institution's Name	Total Official	Percentage	Proportionate Size
Ministry of Land Management, Urban Planning and Construction (MLMUPC)	2588	28%	140
Ministry of Commerce (MoC)	2194	24%	120
Ministry of Labor and Vocational Training (MLVT)	4546	48%	240
Total	**9328**	**100%**	**500**

Source: Constructed by the author (based on ministries' annual report for 2024).

Table 1 shows that the researcher selected three leading public sectors in three institutions of Cambodia, from which the Ministry of Land Management, Urban Planning and Construction (MLMUPC) has 2588 active, followed by the Ministry of Commerce (MoC) with 2194, and 4546 active at the Ministry of Labor and Vocational Training (MLVT), respectively. Hence, the researcher selected 140 active experiences with e-government services as the proportionate sample size for the Ministry of Land Management Urban Planning and Construction (MLMUPC), 120 active experiencing with e-government services as the proportionate sample size for the Ministry of Commerce (MoC), and 240 experiences with e-government services as the proportionate sample size for the Ministry of Labor and Vocational Training (MLVT).

The final stage was purposive sampling, used to select respondents who had knowledge about the relevant issues in the interview or questionnaire questions

(Tongco, 2007). This was done according to the proportionate sample of each ministry. Then the survey was conducted from June to July 2025. The respondents were selected from active users with experience of e-government services in the three institutions, who had experience using e-government services and could represent the target population. Purposive sampling helped the researchers choose respondents whose opinions are related to the research topic (Jankowicz, 1995). So, the researcher sent out the questionnaire to civil servants in the three ministries who reside in Cambodia and have experience using e-government services.

5. Results and Discussion

5.1. Demographics of the Respondents

Of the 500 valid respondents of this study, 321 (64.2%) and 179 (35.8%) of the respondents were male and female, respectively. According to the survey, the age group 18 - 25 years comprised 54 (10.8%); the age group 26 - 35 years comprised 165 (33%); the age group 36 - 45 years comprised 157 (31.4%); and the age group 46 - 60 years comprised 124 (24.8%) of the respondents. The majority of responders were between the ages of 26 and 45, which makes sense given that many of the people experiencing using e-services are in the age group 26 - 45 (65%). Furthermore, the results indicated that 291 (58.2%) of the respondents had completed a bachelor's degree; 201 (40.2%) had a master's degree; and 8 (1.6%) had a doctoral degree. Based on the findings, the majority of respondents had a bachelor's degree, followed by a master's degree. This shows that in the public sector, especially many officials, they all have real skills and extensive work experience and are quality implementers and users of e-government services. In addition, 140 respondents (28%) were officials in the Ministry of Land Management Urban Planning and Construction (MLMUPC), 120 respondents (24%) were officials in the Ministry of Commerce (MoC), and 240 respondents (48%) were officials in the Ministry of Labor and Vocational Training (MLVT). Moreover, the analysis showed that 45 respondents (9%) were contracted officials, 220 respondents (44%) were officials, 76 respondents (15.2%) were deputy office, 50 respondents (10%) were chief office, 50 respondents (10%) were deputy of department, 19 respondents (3.8%) were directors of department, and 40 respondents (8%) were deputy general of director. This shows that the officials are quality implementers and users of e-government services. Finally, 142 respondents (28.4%) had worked for 0 - 2 years, 110 respondents (22%) had worked for 3 - 5 years, 96 respondents (19.2%) had worked for 6 - 8 years, and 152 respondents (30.4%) had worked for more than 8 years.

5.2. Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was used to test the convergent and discriminant validity of the scales. **Table 2** showed that all items of each variable are sig-

nificant and have factor loadings to establish discriminant validity, as illustrated in Table 3. Most of the constructs of this study had AVE between 0.622 and 0.916, higher than the recommended limit of 0.50 (Fornell & Larcker, 1981); this means that the convergent validity of the constructs is acceptable. In this research, a first-order factor analysis technique with the estimation of weight factor was used to determine the goodness-of-fit indices. Moreover, this research was also measured by the Chi-square statistic, goodness-of-fit index (GFI), comparative fit index (CFI), Tucker-Lewis Index (TLI), and root mean square error of approximation (RMSEA) involving 9 measurement models: Trust in Government, Trust in Internet, Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Accessibility, Behavioral Intention, and User Behavior, as illustrated in Table 4. From Table 4, the results indicated that the ratio of the chi-square value to degrees of freedom (CMIN/DF) was 2.323, goodness-of-fit index (GFI) was 0.935, adjusted goodness-of-fit index (AGFI) was 0.943, normalized fit index (NFI) was 0.902, Tucker-Lewis Index (TLI) was 0.991, comparative fit index (CFI) was 0.983, and the root mean square error of approximation (RMSEA) was 0.041. The findings clearly showed that each item set reflects a single underlying construct and supports discriminant validity or fit.

Table 2. Confirmatory factor analysis results (CR) and (AVE) results.

Construct	Source of Questionnaire	Number of Item	Cronbach's Alpha	CR	AVE
trust in e-government (TE)	France Bélanger a,*, Lemuria Carter b	4	0.908	0.902	0.699
Trust in Internet (TI)	Carter and Bélanger (2005); Carter and Weerakkody (2008)	4	0.767	0.846	0.630
Performance Expectancy (PE)	Venkatesh et al., 2003	6	0.956	0.958	0.795
Effort Expectancy (EE)	Venkatesh et al., 2003	5	0.901	0.922	0.703
Facilitating Conditions (FC)	Venkatesh et al., 2003	5	0.933	0.945	0.778
Social Influence (SI)	Venkatesh et al., 2003	4	0.876	0.926	0.758
Accessibility (AC)	Parkinson, 2005	4	0.778	0.862	0.622
Behavioral Intention (BI)	Venkatesh et al., 2003; Al-Sobhi, 2011	4	0.958	0.977	0.916
User Behavior	Gefen, 2000	3	0.920	0.944	0.850

Note: CR = composite reliability; AVE = average variance extracted.

Table 3. Discriminant validity.

	Factor Correlations									
Constructs	**AVE**	**TE**	**TI**	**PE**	**EE**	**FC**	**SI**	**AC**	**BI**	**UB**
TE	0.699	**0.836**								
TI	0.630	0.281	**0.794**							
PE	0.795	0.685	0.45	**0.892**						
EE	0.703	0.665	0.139	0.679	**0.838**					
FC	0.778	0.582	0.384	0.731	0.707	**0.882**				
SI	0.758	0.632	0.497	0.848	0.717	0.642	**0.871**			
AC	0.622	0.504	0.391	0.727	0.724	0.647	0.752	**0.789**		
BI	0.916	0.622	0.445	0.824	0.718	0.664	0.889	0.737	**0.957**	
UB	0.850	0.593	0.388	0.72	0.667	0.742	0.708	0.615	0.682	**0.922**

Note: The diagonally listed values are the AVE square roots of the variables.

Table 4. Goodness of Fit (CFA).

Fit indices	Recommended Value	Obtained Value
CMIN/DF	≤3.0 (Schreiber et al., 2006)	2.323
GFI	≥0.90 (Bagozzi & Yi, 1988)	0.935
AGFI	≥0.85 (Schermelleh-Engel et al., 2003)	0.943
NFI	≥0.85 (Klin et al., 2005)	0.902
TLI	≥0.90 (Hopwood & Donnellan, 2010)	0.991
CFI	≥0.90 (Hopwood & Donnellan, 2010)	0.983
RMSEA	<0.05 (Hopwood & Donnellan, 2010)	0.041
Model summary		**Acceptable model fit**

5.3. Structural Equation Model (SEM)

A structural equation model (SEM) is an approach used to analyze and explain the relationships among multiple variables. Chi-square is a traditional measure used to assess the fit of the model and the magnitude of the error between the sample and the fitted covariance matrix (Hu & Bentler, 1999). The results of the SEM analysis on factors affecting the acceptance and use of e-government services in three institutions in Cambodia were acceptable and consistent with the criteria, as illustrated in Table 4. According to Table 5, the results show that the ratio of

the chi-square value to the degrees of freedom (CMIN/DF) was 2.457, the goodness-of-fit index (GFI) was 0.946, the adjusted goodness-of-fit index (AGFI) was 0.906, the normalized fit index (NFI) was 0.957, the Tucker-Lewis index (TLI) was 0.961, the comparative fit index (CFI) was 0.973, and the root mean square error of approximation (RMSEA) was 0.043. The results strongly revealed that each set of items represents a single underlying construct and provides evidence for discriminant validity or fit.

Table 5. Goodness of Fit (SEM).

Fit indices	Recommended Value	Obtained Value
CMIN/DF	≤3.0 (Schreiber et al., 2006)	2.457
GFI	≥0.90 (Bagozzi & Yi, 1988)	0.946
AGFI	≥0.85 (Schermelleh-Engel et al., 2003)	0.906
NFI	≥0.85 (Klin et al., 2005)	0.957
TLI	≥0.90 (Hopwood & Donnellan, 2010)	0.961
CFI	≥0.90 (Hopwood & Donnellan, 2010)	0.973
RMSEA	<0.05 (Hopwood & Donnellan, 2010)	0.043
Model summary.		**Acceptable model fit**

5.4. Research Hypotheses Testing Results

For H1, there was a 0.051 ($p < 0.05$) standardized path coefficient between behavioral intention (BI) and trust in government (TE). Behavioral intention is significantly impacted by trust in government. H1 was therefore endorsed. The standardized path coefficient for H2 between behavioral intention (BI) and trust in internet (TI) was 0.044 ($p < 0.05$). Behavioral intention is significantly impacted by trust in internet. H2 was therefore supported. Performance expectancy (PE) and behavioral intention (BI) had a standardized path coefficient of 0.099 ($p < 0.05$) for H3. Behavioral intention is significantly influenced by performance expectancy. H3 was therefore endorsed. For H4, the standardized path coefficient between effort expectancy and behavioral intention was −0.013 (p-value = 0.94). Effort expectancy has no significant impact on behavioral intention. Thus, H4 was not supported. For H5, the standardized path coefficient between social influence and behavioral intention was 0.916 ($p < 0.05$). Social influence has a significant impact on behavioral intention. Therefore, H5 was supported. For H6, the standardized path coefficient between facilitating conditions and behavioral intention was 0.121 ($p < 0.05$). Facilitating conditions have a significant impact on behavioral intention. Thus, H6 was supported. For H7, the standardized path coefficient between accessibility and behavioral intention was 0.452 ($p < 0.05$). Accessibility has a significant impact on behavioral intention, though the questions in this con-

struct were made in a reversed pattern. For H8, the standardized path coefficient between behavioral intention and user behavior was 0.784 ($p < 0.05$*). Behavioral intention has a significant effect on user behavior. Consequently, H8 was supported. This is summarized in Table 6 and Figure 2.

6. Conclusion, Recommendations, and Limitations

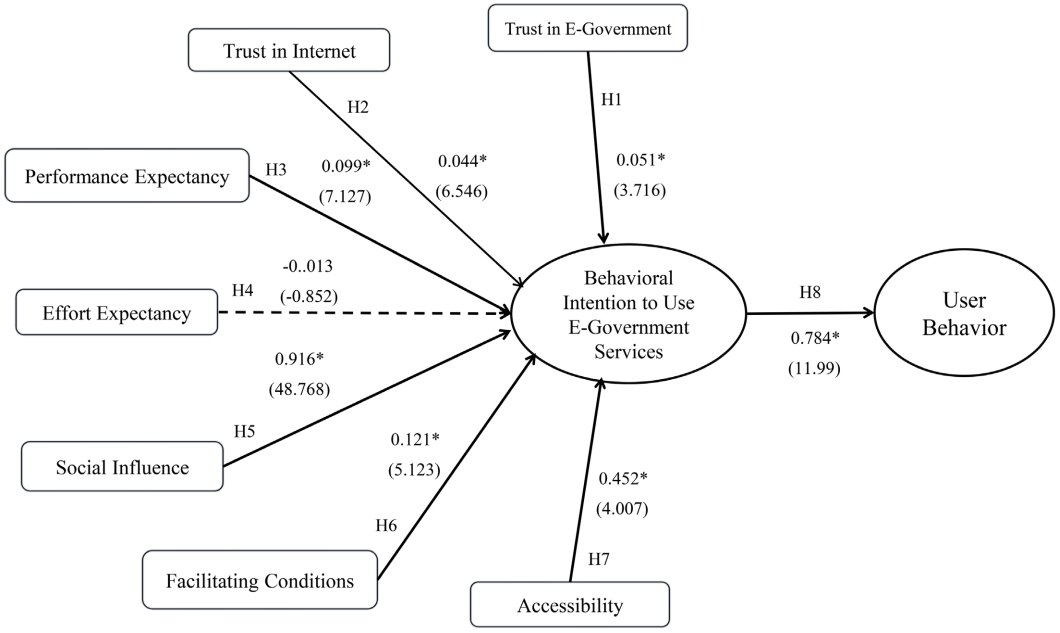
6.1. Conclusion

This study examined the variables influencing users' acceptability and utilization

Table 6. Hypothesis results of the structural model.

Hypothesis	Path	Standardized Path Coefficient (β)	S.E.	C.R.	p	Test Result
H1	TE → BI	0.051	0.014	3.716	***	Supported
H2	TI → BI	0.044	0.007	6.546	***	Supported
H3	PE → BI	0.099	0.014	7.127	***	Supported
H4	EE → BI	−0.013	0.015	−0.852	0.394	Not supported
H5	SI → BI	0.916	0.019	48.768	***	Supported
H6	FC → BI	0.121	0.024	5.123	***	Supported
H7	AC → BI	0.452	0.113	4.007	***	Supported
H8	BI → UB	0.784	0.065	11.99	***	Supported

***represents a p-value < 0.05.



*$p < 0.05$.

Figure 2. Conceptual framework of reliability statistics.

of e-government services across three Cambodian institutions. With a focus on e-government services, this study can add to theories and literature on technology adoption. As previously stated, a number of studies have examined issues surrounding service deployment from the supply side, but few have examined service adoption from the perspective of the public (Al Hujran & Chatfield, 2008; Rehman et al., 2012). Furthermore, the benefits of e-government services are linked to their acceptance, and since developing nations have very low rates of e-government service adoption, these benefits may not be completely realized due to the governments' primary concentration on the supply side of e-government service adoption and their sporadic attention to the demand side. It should be mentioned that people's needs may not be met by what governments provide (Maiga & Asianzu, 2013).

The Factors Influencing the Intention to Use E-government Services, The Case Study in Cambodia, was studied using a modified UTAUT. First, the model was used to validate relationships among trust in government, trust in the internet, performance expectancy, effort expectancy, social influence, facilitating conditions, accessibility, and behavioral intention. Second, the model was used to validate the relationship between behavioral intention and user behavior of e-government services. Data were collected from 500 users who had experience using e-government services and were located in three institutions in Cambodia, including the Ministry of Land Management, Urban Planning and Construction, the Ministry of Commerce, and the Ministry of Labor and Vocational Training, through a survey questionnaire, and were analyzed using SEM.

The findings revealed that trust in government, trust in the internet, performance expectancy, social influence, facilitating conditions, and accessibility had a strong impact on behavioral intention, where social influence had the strongest influence. Moreover, behavioral intention had a significant impact on user behavior. On the other hand, effort expectancy did not significantly affect behavioral intention. Moreover, the results provide researchers with pertinent theoretical implications on issues pertaining to technology adoption, such as the need to ensure that user interactions are straightforward and understandable and that users may rapidly become proficient in the operation of the service. Additionally, it gives pertinent government agencies information on things to think about when preparing to implement e-government services in their organizations.

Additional research is necessary to address the shortcomings of this study. To make the results more generalizable, future researchers should gather data from a wider range of users in both the public and private sectors. They should also consider the respondents' nationality, investigate the impact of moderating factors such as gender or experience variation, and include other crucial constructs, such as perceived risk, attitude, or personal innovativeness, in their future models.

Finally, at the conclusion of this study, useful suggestions are made to support government services by highlighting the importance of seven dimensions that influenced behavioral intention, including trust in e-government, trust in Internet

services, performance expectancy, effort expectancy, facilitating conditions, social influence, and accessibility. Moreover, behavioral intention was also noticed to significantly influence users' behavior of e-government services in Cambodia. Hence, government institutions should ensure that the necessary information, needed resources, and support are continuously provided in order to inspire users to use e-government services.

6.2. Recommendations

The incorporation of three additional constructs related to trust and accessibility in the UTAUT arises as e-government services are delivered by government institutions, and their operations are closely connected with the internet and the use of technology such as mobile phones or computer devices. In the synthesis of prior studies (Carter & Bélanger, 2005; Carter & Weerakkody, 2008; Alenezi & Karim, 2010; Sundaravej, 2010; Carter et al., 2011; Kurfalı et al., 2017; Mansoori, Sarabdeen, & Tchantchane, 2018; Wiafe et al., 2019; Samnang et al., 2021), trust and accessibility determined behavioral intention. Therefore, this research has proposed and tested a theoretical model with trust in government, trust in the internet, and accessibility as additional constructs in the UTAUT. The results of the analysis showed that this proposed theoretical model performed well. Moreover, based on the research findings and evidence from previous research, trust in government, trust in the internet, and accessibility can be proposed as fundamental variables of the modified UTAUT.

According to the research findings: Firstly, other institutions should find and create new technologies, such as more e-services, to suit the ability of users to implement and adopt e-government services to more effectively maintain and gain user trust. Secondly, government agencies looking to offer new e-services must maintain and enhance Internet services in order to improve client convenience. Government organizations should also urge more users to follow the legal and technological frameworks that can protect users from online threats, especially those who provide services and users. Furthermore, the Internet experience can contribute to increased trust in the Internet, which raises the probability that consumers will use it. Last but not least, each institution's website needs to have additional e-service solutions developed by the government. Thirdly, government agencies or service providers may find it helpful to control social influence that could put pressure on people by planning events or seminars to exchange best practices, choosing devoted users who are interested in e-government services, providing supportive word-of-mouth, and developing measures against harmful feedback (Pynoo et al., 2007; Kijsanayotin, Pannarunothai, & Speedie, 2009; Weerakkody et al., 2009; Šumak, Polancic, & Hericko, 2010; Chiu et al., 2012; Kolog et al., 2015; Mensah, 2019; Kamarudin et al., 2021; Samnang et al., 2021). Fourth, government agencies trying to adopt new technologies, such as websites and e-services, need to ensure that the necessary resources and ongoing assistance are available to assist service providers and users promptly when they encounter is-

sues and challenges. Fifth, governmental organizations should therefore work to enhance users' access to e-government services and offer a more efficient and effective way for them to do so. Any e-government service engagement must be easily comprehensible, and users must become proficient in using the service. Possible ways to achieve these objectives can be made through service leaflets, live shows, and success stories (Kijsanayotin, Pannarunothai, & Speedie, 2009; Wang & Shih, 2009; Weerakkody et al., 2009; Koh et al., 2010; Alshare & Lane, 2011; Pynoo et al., 2011; San Martín & Herrero, 2012; Kolog et al., 2015; Kurfalı et al., 2017; Mansoori, Sarabdeen, & Tchantchane, 2018; Almaiah & Nasereddin, 2020; Phan, Ho, & Le-Hoang, 2020; Kamarudin et al., 2021; Samnang et al., 2021). Lastly, governmental organizations should therefore consistently encourage users to adopt these e-services by providing the information and tools they need.

Data analysis showed that the suggested theoretical model performed well and that all of the study's constructs are trustworthy. Based on the findings and evidence from previous research, trust in e-government, trust in the Internet, and accessibility can be proposed as vital components of the modified UTUAT model. Furthermore, effort expectancy did not significantly influence behavioral intention, and, though this relationship did not exist in the UTAUT model, this provides a new perception of people's intentions.

Lastly, helpful recommendations are offered to support government services by emphasizing the significance of seven dimensions that influence behavioral intention: accessibility, facilitating condition, social influence, performance expectancy, effort expectancy, and trust in e-government and Internet services. Furthermore, it was observed that users' behavior with e-government services in Cambodia was highly influenced by behavioral intention. Therefore, government agencies should make sure that the information, resources, and assistance that consumers require are consistently available to encourage them to use e-government services.

6.3. Limitations and Future Research

There are still limitations to this research, even though the right measures were taken. First, only users and civil servants from three ministries—the Ministry of Land Management, Urban Planning and Construction, the Ministry of Commerce, and the Ministry of Labor and Vocational Training in the Kingdom of Cambodia—were used to gather data. This is because civil servants have a great deal of experience with e-government services and are essential to their implementation, upkeep, and citizen interaction. Secondly, this study did not concentrate on users in the private sector since the researcher anticipated that other stakeholders would not be the main actors and wanted to save the opportunity for future researchers. Third, demographic variables such as gender, age, experience, and education were not taken into account in this study. Future studies should therefore take into account the impact of modifiers like gender or experience variance. Last but not least, prior empirical research found that other critical constructs, including attitude, self-efficacy, voluntariness, personal innovativeness, individual mobility,

and perceived risk, influenced behavioral intention, even though three additional constructs have already been added to the UTAUT to examine behavioral intention (Dwivedi et al., 2017; Fishbein & Ajzen, 1975; Kijsanayotin et al., 2009; Liébana-Cabanillas et al., 2015; Rattanaburi & Vongurai, 2021).

As previously said, there are still a number of limitations with this study. To be better and even broader, therefore, future studies should include additional crucial components in the suggested model, such as attitude, perceived risk, or personal innovativeness. In order for e-government services in Cambodia to thrive, be comprehensive, and receive efficient support, researchers should take the time to take into account the numerous additional government agencies that provide e-services that have not yet been examined, and include other private sectors.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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